

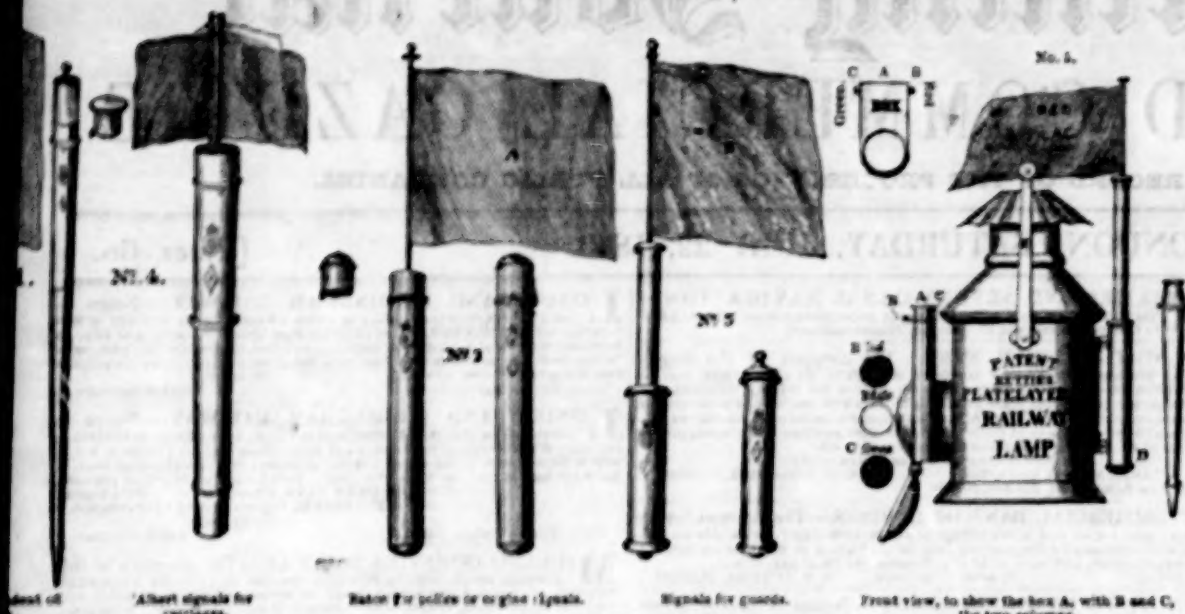
FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

[PRICE 6D.]

great loss of water, it being the whole other materials are subject. It can be also, improved, to reduce, of a small amount.

RETTIE'S NEW ALBERT DAY SIGNALS FOR RAILWAYS.

TO THE EDITOR OF THE MINING JOURNAL.



No. 1.—This is another most useful invention of Mr. Rettie's for railways. Practical utility seems always his aim, and we feel it our duty to recommend the same, knowing that, as a duty to the public, as well as of the economy to railway companies, in preventing accidents and collisions, they cannot be too much "protected," and it is also their duty to adopt whatever is necessary and useful, whether it arises from those connected with railways or not. They are so tastefully got up, that not only the "servant," but the "Director" or "Manager," may use them, and none be aware of it; and, at the same time, so portable, that guards may have them in their pockets, without being obliged to go to the "luggage-box" for them; while the train may have passed on a mile or two by the time he has got out his signal from the box on the top of the carriage where it is kept.—See sketch No. 1.

No. 2.—The Walking-stick signal has also another advantage; it may be converted into a "road signal," as it can be planted into the ground and left, which will enable a policeman to go forward, if necessary, either for assistance or to warn, as the case may require, as it is applied to support the "plate-layer's lamp," which is another of this gentleman's most valuable inventions for railway safety.—See sketch No. 2.

No. 3.—The Baton Albert signal is a case, in which the flag is contained, clean in appearance, like a "police baton," and is useful for the "engineer," as the cloth is kept clean, and is always ready for use, "hung by the side of the engine."—See sketch No. 3.

No. 4.—The Telescope, or pocket signal for guards, is so small, as may be carried or slung at the side, or for breast pocket, and for guards will be found extremely useful, and absolutely necessary, as it is always at hand and ready.—See sketch No. 4.

No. 5.—The Plate-layer's Lamp, with Albert signal, is very useful—see sketch No. 5; the box, A, contains two slides; B and C, red and green, with a coloured catch at the side, which may be raised up and down in a second, as required; as instantaneous, either in stopping a train, or in giving signals of the train, or from the road; D, handle, containing Albert signal.

CARBON, AND ITS COMBINATIONS WITH OXYGEN.

WOODWINSTON LITERARY AND SCIENTIFIC INSTITUTION.

Mr. J. H. Pepper commenced a lecture on the above interesting subject on Thursday, the 6th, which terminated on Thursday, the 13th instant. The lecturer introduced his subject by a consideration of the various forms under which carbon exists, either in a state of nature or manufacture. The three principal forms in which carbon exists in nature are—the diamond, plumbago, and anthracite. He first described the nature of the diamond, which is pure carbon, and explained the estimate of what is termed "cutting glass," but which is, in reality, a series of blows, which fractures it in the line passed over by the diamond. Plumbago, commonly, but most erroneously, called blacklead, has not a particle of lead in its composition. Anthracite coal also contains from 70 to 90 per cent. of carbon, the remainder being earthy and metallic impurities. The method of burning charcoal from wood, principally the willow, was explained, and its manufacture from animal substances, digested in a retort, called "animal charcoal," was described. This latter substance has the power of discharging or absorbing in itself nearly all the vegetable colours; a deep coloured blue liquid was boiled over a lamp, with a small portion of animal charcoal, when, on filtering it, the liquid remained clear as water; in this method common ink, rum, wine, &c., are directed of their true dark colours. Carbon was found in nature with almost every other substance, and with lime alone it formed between 600 and 300 different species of carbonates. To show the nature of carbonic acid, and its identity, though produced in various ways, he first passed a piece of charcoal, suspended in a jar of oxygen. In another jar, containing oxygen, a diamond previously brought to a white heat by the blowpipe, was suspended, which immediately entered into a state of combustion, with a most brilliant light until consumed, and a lighted taper, placed under a receiver, was allowed to burn until all the oxygen was consumed. A lighted taper was then introduced into each of these jars successively, when, in each case, it was instantly extinguished, proving that the oxygen, in each of the several processes, had been converted into carbonic acid; the gas from the large was also the same. The atmospheric air was then drawn from a flask, and carbonic acid gas reported; a piece of potassium was introduced, and the flask stopped by a stopper, when the potassium, from its intense affinity for oxygen, burst with a vivid light, waiting with the oxygen of the carbonic acid, and forming potash, while the carbon was deposited in the form of a black powder.

On Thursday, the 13th, Mr. Pepper concluded his lecture. He first considered the properties of carbonic oxide, explaining its difference from carbonic acid, the former being still capable of combustion, though it would not support it. It might appear a paradox to state, that this gas should burn, while carbonic acid, with double the quantity of oxygen, should not; but the reason was plain: carbonic acid contained all the oxygen capable of uniting with carbon, and, consequently, the latter was no longer combustible; while the carbon of the carbonic oxide would combine, and take up more carbon, until it was saturated with oxygen, and then in converted into carbonic acid. He ignited some of the gas in a jar, which burst at the mouth with a loud flame, similar to that seen following over hot iron or blue tiles, or that which passes over the surface of a fine domestic fire. He next described the most common of the hydro-carbons, of which there are twenty different kinds, which have been assigned; these obtained from coal by distillation are—the light carbonated hydrogen, or fire-gas; the hydro-carbon, or oil-gas; the gas of alcohol; and the hydro-carbon, or kerosene. The decomposition of oil-gas, by absorption, was beautifully illustrated by an experiment, the substance passing down the receiver with a brilliant flame, leaving it coated with a mass of black carbon; and, as shown the effect of some substances on oxygen, a piece of potassium was thrown into a glass dish of water, in which it burned almost rapidly, with a bright purple flame, until consumed, and the water converted into a solution of potash. The lecturer then explained the use of sulphur, and described, from a large diagram on the wall, the process of producing coal gas, as now generally practiced at the

gas establishments; he performed several experiments, to show that, in the consumption of all the hydro-carbons, the illuminating power depended on the carbon; and concluded by a clear and familiar description of the Davy safety lamp, and Martin and Roberts' improvements, by the addition of the glass cylinder and the inner wire gauze. Both lectures gave great satisfaction, and the audience on each occasion testified their appreciation by continued applause. Mr. Pepper is a very young man, and there is at times a slight difficulty in his explanations; but position as a lecturer will soon remedy this. It is evident he is thoroughly master of the subject he undertakes, and has confidence in the results of his illustrations; and he bids fair to hold a distinguished place in the scientific world.

PARIS AND LYON RAILWAY.—A circular has been issued from the house of Messrs. C. DUBOIS and Co., signed by seven directors of the above company, in which it is stated that a deputation from them having just returned from Paris, the English shareholders are informed, that, owing to a variety of unfavourable circumstances, it has hitherto been found impossible to conclude a treaty with the Minister of Public Works, which is a necessary preliminary to the introduction of a bill into the legislative Chambers of France.

It appears the chief impediment to a successful result has been, principally, the conflicting opinions which have existed respecting the two proposed routes—one by the Haute Saône, and the other by the valley of the Yonne. The question relating to a close, a distribution was manifested by the capitalists of Paris, and hence the incomplete state of the French subscription list. A too hasty conclusion is, however, continued against, and the directors promise to take up that position best calculated for the interests of the shareholders. Negotiations are on foot, which it is hoped will terminate favourably; and, meanwhile, the funds of the English shareholders are in the safe keeping of the directors, and will be returned without deduction, as soon as it is ascertained that there is no fair probability of obtaining satisfactory terms in the course of next session, which commences in December.

FRANCE BY DEAN RAILWAY.—At the annual meeting of the Gloucester Chamber of Commerce, on Friday week, the committee of management made the following report in reference to this project and the ultimate carrying out of the undertaking:—"Perhaps no measure of greater importance, as connected with the interests of this port, has ever been brought forward, than that of the Dean Forest and Gloucester Railway. The advantages of an extensive and direct export trade, in such articles as wool and iron ore, especially the former, are too obvious to require any detailed arguments. The want of it has long been a serious impediment to the rapid advance of this port, and the improvements contemplated have been full more and more every successive year. Your committee, entertaining these views, and believing the scheme (though some objections might be taken to its details) calculated to afford a new and speedy remedy for the evil, and to be of vital importance, petitioned both Houses of Parliament in favour of the measure. The result is too well known; but the progress of the inquiry in the committee of the House, and the arguments there presented, sufficiently show, that had some necessary formalities been more strictly complied with, and its preliminary better prepared on engineering points, and on the estimate, a bill in this effect would have secured the assent of Parliament—such, at least, is the opinion of your committee. Then the main difficulty has been sufficiently removed to encourage another attempt during the next session of Parliament, with some guarantee of success, they cannot being themselves to do so; and should another bill be introduced, on the subject, they strongly urge on the chamber, merchants, and traders generally, the duty of affording it their best support. It is a contribution to the committee, however, to be enabled to state, that the agitation of the question has not been wholly fruitless of results. The attention of the public has been awakened to the fact, that the Port of Dean was in a great need—no export trade; and already have capitalists been opened with the most complete by parties connected with the Forest, having, for their object, the promotion of an export trade in coal, and the connection between these objects, to believe the great company are disposed to second and encourage their efforts; and they entertain the hope, they may secure the completion, that their co-operation will have the pleasing duty of contributing to the next session's meeting, that a considerable quantity of coal has been shipped from the banks of the Dean for foreign ports."

LEADEN SHALE, LIVERPOOL.—In this shales were found the estimated quantity of coal is 100,000,000 tons.

THE "GREAT BRITAIN" IRON STEAM-SHIP.

This mammoth steam-vessel was launched into her native element on Wednesday last. The presence of Prince Albert, and many other distinguished guests, together with the attractive character of the exhibition, collected together an immense assemblage of visitors; and, at the appointed time, the *Great Britain* was floated out of her dock, amidst the acclamations of hundreds of thousands of people. We have repeatedly noticed, during their progress, particulars respecting the extraordinary size, and the many improvements effected in her construction and internal arrangements, but the following general description cannot fail proving of interest to our readers:—Length, 350 feet; power, 1000-horse; length, from figure-head to tail, 322 feet; length of keel, 209 feet; extreme width, 50 feet 6 inches; depth of hold, 22 feet 6 inches. She has four decks: the first or upper deck is deck, and measures 305 feet in length. The second deck consists of two promenade saloons; the aft or first class is 110 feet 6 inches by 22 feet, and the forward or second class 67 feet by 21 feet 9 inches; they are well lighted and ventilated. The third deck consists of the dining saloons, the grand saloon being 95 feet 4 inches by 30 feet, and the second class or forward saloon 61 feet by 21 feet 9 inches. These saloons are all 8 feet 3 inches high, and surrounded with sleeping rooms, of which there are 26 with one bed, and 113 with two beds, giving 252 berths; these are, of course, the same height, and an improvement has been introduced which affords, by means of passages, much greater privacy than in any other vessel heretofore built; this is a great advantage. The fourth deck is appropriated to cargo, of which she can carry 1200 tons, besides coals, 1000 tons; underneath this deck, in the after-part of the ship, is an iron fresh water tank, and in the fore-part is an air chamber from the boiler to the fore-bulkhead. The fore-cabin is appropriated to the officers and sailors; mess rooms, sleeping berths, sail rooms &c., are underneath. The middle part of the vessel, from the bulkhead of the fore part to the bulkhead of the after part, a space of eighty feet is occupied by the engines, boilers, engineers' room, and cooking department, which is over the boilers. There are three boilers, capable of containing 250 tons of water, heated by twenty-four fires, and four engines each of 250-horse power. The cylinders are eighty-eight inches in diameter, and the chimney is eight feet in diameter and thirty-nine feet high. She has six masts, the highest of which is seventy-four feet above deck. She will carry about 1700 square yards of canvas, and will be rigged with Smith's wire rope instead of ordinary rope. The hull is divided into four water-tight bulkheads or compartments. Her consumption of coals will be about fifty tons per day. She will be propelled by the Archimedian screw, on the plan of the *Palmette*, Mr. F. P. Smith. Upwards of 1500 tons of iron have been used in her construction, and that of the engines and boilers. Her draught of water when loaded will be about sixteen feet, and her displacement of water about 3000 tons. The plates of the keel are from three-quarters to one inch thick, and all the other plates are about one half inch thick. She is clincher built, and double rivetted in the longitudinal ribs. The ribs are framed of angle iron 6 inches by 3½. They are about fourteen inches apart in the middle, gradually increasing to eighteen and twenty inches, so that her sides are but seven inches thick. The boiler platform is of plate-iron, supported upon ten iron keelsons, the centre ones being 3 ft. 3 in. deep. At the engine-room, for the purpose of additional strength, there are 9 intermediate double ribs and 16 additional transverse ribs. The joints for the support of the several decks are bars of 3-inch angle iron with a joint bar of five inches by half an inch rivetted on the side. The distance of the joints about two feet and a half. The deck planks are fastened to the angle iron by screws from below, and firmly secured at each end to the vertical ribs, which affords a support to the sides, in resisting both external and internal pressure, and are supported lengthwise by longitudinal beams and stanchions. To preserve the hull from springing horizontally, there are diagonal tension bars placed between the angle iron bars and deck planks. The engines were constructed on the company's premises, under the superintendence of Mr. Brunel. Mr. Humphrys was the original resident engineer, but in consequence of the company refusing to adopt his patent trunk engine he resigned, and shortly afterwards died. Since that period Mr. S. H. Guppy, one of the directors, has acted as resident engineer. One principal peculiarity is that the cylinders will stand at an angle of about 40 degrees towards each other. One of the most remarkable parts of the machinery is the wrought-iron mainshaft, manufactured at the Merry Iron-Works. This is the largest shaft ever constructed, weighing about sixteen tons. Her pumps will be worked by machinery, and will be capable of throwing off 7000 gallons per minute. The original estimate of the cost of the *Great Britain* was 75,000L, but the cost will ultimately be from 90,000L to 100,000L. The *Great Western* cost about 65,000L.

THE "VICTORIA AND ALBERT."—A trial trip of the new Royal yacht was made on Wednesday last, when she proved herself to be a first-rate sailer, and an excellent sea boat; her speed was calculated at fourteen miles per hour, and it is anticipated that, when she is all staunch and in proper trim, her rate of sailing will be even greater; in performing the fourteen miles per hour, it must be understood, that this is her actual speed through the water, without reference to the tide. The engines were by Messrs. Manley, Sons, and Field, of Lambeth, and are of 400-horse power, 6-foot stroke, and constructed on the double cylinder principle, as patented by Mr. J. Manley and Mr. J. Field, members of that firm. The peculiar advantage of the double cylinder principle is—the getting an increase of power within a given space and weight, and with a connecting rod fully as long as those on the side lever or beam principle. There are two boilers, not tubular ones, but with the double tier of flues, first introduced by Messrs. Manley in the *Great Western*, and which have proved an entirely successful. During her trip the supply of steam was so abundant, that it was allowed to blow off almost without intermission the whole day. The paddles are upon the feathering principle; they are thirty feet in diameter, the boards 10 ft. 6 in. in length, and eighteen revolutions were made per minute. The trial was very satisfactory, both as regards the efficiency of the engines and the capabilities of the yacht herself. The machinery worked with the greatest ease, and had been so correctly fixed, that it did not require the slightest adjustment.

THE IRON STEAM SHIP.—**HELEN MACDONALD.**—On Thursday, the 10th inst., this fine vessel was launched from the building-yard of Mr. John Laird, North Birkenhead. She is 100 feet long between the perpendiculars, 26 feet beam, 16 feet deep in the hold, and measures 591 tons. She is fitted with Forester's patent inverted cylinder engines and tubular boilers, by which a saving in stowage room is effected of 7000 cubic feet. She is, altogether, a handsome and noble-looking vessel, and her model seems calculated for great speed. She was christened by Mrs. Cook, a sister of one of the firm of Forester and Co., and she glided gallantly into her native element, amid the cheers of the assembled multitude.

THE SCREW PROPELLER AND AUXILIARY STEAM-POWER.—As the propeller is only intended to be used as an auxiliary power, a small high pressure engine would be all that would be required, and, consequently, it would take up but little of the stowage of the vessel. In short, it seems as if this invention had appeared almost the time to stimulate us to further exertion, and the emphatic rebuke of Captain James Ross from the *Antarctic* vessel, with officers and seamen already accustomed to the ice, and with two vessels already strengthened, in which the propellers could be applied at a moderate expense, appears to mark the present as a period at which Arctic research might be most advantageously resumed.—Capt. W. F. Bunsby's Narrative.

STEAM NAVIGATION.—As an instance of the extraordinary speed of some of our river boats, we may mention that the *Vesper*, a Gloucester boat, belonging to the Star Company, after undergoing some alterations, and being fitted with new boilers, is now regularly making the passage (upwards of thirty miles) in little better than one hour and a half, with tide, and two hours and a quarter against, including stoppages. During four days of last week she carried four passengers. The *Vesper* is beautifully fitted, and, in every respect, a credit to the company.

THE NEW GRAVING DOCK AT WOODWORTH.—This stupendous work, which has taken seven years in completing, was entered for the first time on Tuesday last, by her Majesty's frigate, *Chickadee*. This magnificent basin is 100 feet long at top by 50 feet wide, tapering to 94½ feet at bottom, and about 30 feet deep. It is lined throughout with dressed granite, eighteen inches thick, every stone being joggled to its neighbour by pieces of *Banger* stone, to prevent the sinking of any part of the work. The sides of the basin are formed with stairs, or steps, to facilitate descent, and also offering firm holds for crews to support a vessel on her keel. The engineering difficulties in the formation of this work have been great; the excavation was cut through a stratum of peat, and another of quicksand, from which flowed a continual stream of water, to the amount of 200 gallons per minute. The work has been executed by Messrs. Gilman and Potts, from the plans of Mr. Walker—cost about 20,000L.—and, taken as a whole, reflects great credit on the parties concerned.

HYDROGRAPHIC CANAL.—At the general second meeting of the shareholders of this company, held at the Commercial Inn, Adolphus-terrace, London, Mr. E. Ludgate was appointed agent, and Mr. T. Brown, engineer, in the name of Mr. Brunel, who resigns in consequence of the declining state of his health. The sum of 100L. was presented to Mr. Brunel, as a testimony of the high esteem entertained by the proprietors of the valuable services rendered by that gentleman, during the twenty-five years he has been in the employment of the company.

RECENTLY.—In the pastures of an emerald, the laurelled palmettes of all, has liberally opened a temple where all may meet. The scene is a picture of the country or end of those who seek solace; who never allow a higher or a lower place from unimpaired natural vision, or unobscured spiritual perception. His influence on the world, the state of the sea on the coasted earth, has long been preparing in the higher cultivation and further improvement. The philosopher of new country should not see an enemy in the philosopher of another; he should take his seat in the temple of science, and ask not who sits beside him.—*Edinburgh*.

PROCEEDINGS OF PUBLIC COMPANIES.

CLARENCE RAILWAY COMPANY.

A special general meeting of the shareholders in this company was held at the George and Vulture Tavern, Cornhill, on Tuesday, the 16th inst., Henry Blanshard, Esq., in the chair.

The usual preliminary proceedings having been gone through, the SECRETARY read the directors' report, which stated, that, since the last meeting, the committee had vigorously exerted themselves to obtain a reduction of the interest from 5 to 4 per cent. on the debt due to the Euxine Loan Commissioners, amounting to 144,000*l.* 15*s.* 10*d.*, and they were happy to inform the proprietors that they had succeeded, and thereby effected a saving of 601*l.* 19*s.* 10*d.*, reducing the debt to 133,343*l.* 16*s.* 10*d.*; part of this latter sum the committee had discharged out of the money raised on the 6 per cent. preferential shares, leaving a balance due of 70,243*l.* 16*s.* 10*d.* The committee had agreed to liquidate this sum in twenty years, from the 1st of November last, with interest at 4 per cent., by fixed annual payments of 5000*l.* each, which they considered a most beneficial arrangement for the company. The claim by the West Durham Company, of 19,745*l.* 7*s.* had been satisfied, having paid in cash 12,500*l.*, leaving a balance of 7,245*l.* 7*s.*, for which the company had taken second class preferential shares. The "Clarence Amendment Bill," which the committee considered placed the company on a healthy basis, received the royal assent on the 27th June last; it authorises the company, in discharge of loans, to issue first class preferential shares, to pay the parties who advanced the sums paid the loan commissioners (85,000*l.*), and the Chilton mortgage (14,100*l.*), together, 79,100*l.*; and also to satisfy the parties who advanced the money to pay the West Durham Company (Messrs. Williams and Co.), and for the general purposes of the company; also, second class preferential shares, to pay off the loans advanced by sundry proprietors, with interest at 5 per cent. on Dec. 31, 1842—100,916*l.* 17*s.* 3*d.* Resolutions had been legally prepared for properly carrying out these several measures, which were submitted for approval. The report then stated that the traffic on the railway continued to increase, the seven months from November, 1842, to May, 1843, showing an increase over the corresponding seven months of 1841-2, of 2095*l.* 11*s.* 4*d.*; and a considerable saving had been effected in the expenses of carrying on the traffic on the line. From the statement of accounts, it appeared, that the profit from Nov. 1, 1842, to May 1, 1843, had been 1566*l.* 6*s.* 6*d.*, and that it was the intention of the committee to pay the 6 per cent. dividend on the preferential shares on the 1st of August next, for six months to May 1, 1843, amounting to 1951*l.* 15*s.* 11*d.*, leaving 3714*l.* 10*s.* 7*d.*, with the profits of May and June, to pay the 4 per cent. dividend on the second class preferential shares, due on the 1st of July next, which will be in course of payment after Sept. 1 next; and the remaining balance, with what further profit may arise, will be applicable to pay off the loan commissioners' annuity, payable on the 1st of November in each year.—It further stated that the committee had so far succeeded in their opposition to the bill of the Railway Junction Company, in Parliament, as to compel them to abandon their projected line, and adopt one on a different level, the operation of which is calculated to diminish the objections to the Junction line as tending to injure the traffic on this line.—The railway was in good working, and there was every prospect of the revenue gradually increasing.—The total receipts for the above period had been 13,296*l.* 8*s.* 6*d.*, and expenses 7450*l.* 3*s.* 3*d.*, leaving a profit, as before stated, of 1566*l.* 6*s.* 6*d.*—The resolutions, which were of considerable length, being drawn up in due legal form, were then adopted unanimously. A vote, expressive of the thanks of the proprietors to Messrs. Blanshard, Howley, and Shaw, as trustees for carrying out the arrangements with the Euxine Loan Commissioners, and to the committee, was also passed unanimously; and it was resolved that the report be adopted, printed, and circulated among the proprietors.—Thanks having been passed to the chairman and committee of management, the meeting, which was more than usually numerous, separated.

DUKE OF CORNWALL'S HARBOUR, LAUNCESTON AND VICTORIA RAILWAY COMPANY.

A half-yearly general meeting of the shareholders was held at the London Tavern, Bishopsgate-street, on Thursday last, for the purpose of winding up the affairs of the company.—In the absence of T. Ramsbottom, Esq., M.P., Mr. RICHARDS was voted to the chair.—Mr. DYSON (the secretary) read the advertisement convening the meeting, and the minutes of the meeting held in January last, which were confirmed.—The CHAIRMAN, after alluding to the course of Mr. Ramsbottom's absence, stated that the proprietors had but little business to transact, which would take up their time on this occasion. It would merely be the duty of the directors to submit to them the cash accounts of the company, and to state what had been done with respect to Mr. George Rose since the last meeting; for he was most happy to say that they were just on the point of closing the unfortunate and long-pending affairs of the company, and he conscientiously believed, that the outward circumstances which had so long prevented their arriving at this desirable result, had not been owing to any inactivity of the directors, but that, on the contrary, they had done all they possibly could for the interests of the shareholders, who should bear in mind that the claim of Mr. Rose was at their desire opposed, and that the law proceedings which had ensued could not be avoided. The arbitrator (Mr. Williams) having at length, however, decided that Mr. Rose was indebted to the company in about the sum of 4500*l.*, the proprietors considered it right, at the last meeting, to authorise the directors to settle, even if less were obtained than the amount of the arbitrator's award, and, in consequence, upon Mr. Rose's assurance that it was impossible for him to pay any such sum as 4500*l.*, they had, after much consideration, accepted 1000*l.*, and given him a discharge; this was to be a final settlement of the question, and a mutual release to both parties. Now, with respect to some owing to other parties—the total liabilities of the company amounted to 2261*l.* 17*s.* 10*d.*, which included even the expenses of the room they were then in, and the balance at the bankers was 514*l.* 10*s.* 11*d.*—thus leaving 2261*l.* 17*s.* 10*d.*, besides which there were unpaid calls, which would realise about 1000*l.* further.

Mr. PARKER said that at the last meeting, it was arranged that no payments should be made without the consent of the proprietors; now, he found that since the meeting in January, they had paid Mr. Dyson (secretary) 100*l.*, and Mr. Cole (auditor) 450*l.* Mr. COLE called Mr. Parker's attention to the circumstance that Mr. Ramsbottom at the last meeting promised him that if he wanted money on account, he should be paid, and the CHAIRMAN explained that at the last meeting it was expected the settlement with Mr. Rose would have been made immediately, whereas it was unavoidably delayed till several months afterwards, and in the mean time, the parties concerned wanted money, so it became necessary to make them the payments named on account.—Captain BROWN, as a director, thought it unjust to Mr. Parker to find fault with their conduct when so much had been done by them without any remuneration; he assured him he had devoted much time, and had been at considerable expense in the matter, and he wished the meeting would not separate that day until after closing the accounts.—After a good deal of conversation, a resolution was put from the chair:—"That the liabilities of the company, amounting to 2261*l.* 17*s.* 10*d.*, be discharged, and that no further expenses be incurred," which was carried unanimously, with the exception of Mr. Parker, who objected to any payment being made, until the several bills had been laid before the proprietors.—A shareholder here suggested the policy of giving up the unpaid calls, and thus closing the affairs of the company.—The CHAIRMAN said that he was in no way surprised by the resolutions of the directors' conduct entertained by Mr. Parker, knowing how much the situation of a director was sometimes abused, and that, in fact, many public works were kept back through the misconduct of directors; yet, in this case, he was sure they had all used their utmost exertions to arrange the affairs of the company to the best interests of the shareholders, though that could not be effected so quickly as he had anticipated. As to the propriety of now giving up the unpaid calls, he could not agree to such course; for amongst those who had not paid, were the names of parties who could well afford to pay, and if they were not compelled to contribute their share, he, for one, should claim his money back, as he saw no reason for one part of the shareholders paying the debts of the others; he, therefore, trusted that the honourable shareholders would not press the subject.

Mr. ORLEY said that he could have wished that Mr. Ramsbottom had been present, that they might personally have thanked him for his services, as well as acquiesced, as to the name of the company, and he thought they ought not to separate without expressing some mark of their respect for his conditional liabilities on their behalf; particularly remembrance he was sure Mr. R. would not forget, and he should, therefore, propose that a piece of plate be presented to him with a suitable inscription, and be caused to value fifty guineas.—This motion was seconded by Mr. BROWN, and carried unanimously.—Mr. JAMES then said he thought such a testimony of their esteem ought to be presented to a suitable person, particularly as the balance in hand, if returned to shareholders, was so very trifling, and he, therefore, proposed that the piece of plate should be presented to a director, to be given to those shareholders who had paid their last call, each director, as well as the most of the piece of plate, to be delivered out of the balance due to the proprietors.—This motion was duly seconded, and carried.—A vote of thanks was then proposed to Mr. Richards, for his conduct in the chair, which was seconded by Mr. PARKER, and carried unanimously.

Mr. RICHARDS thanked the proprietors for their kind appreciation, particularly to one obliged to Mr. Parker, who had seemed it right to object to some other vote which had been carried. Before separating he wished to assure that gentleman, and the other shareholders, that the directors had had to contend with, through the claims put forth by Mr. G. Rose, had been considerable, and were only to be met by donations, and it was due to Mr. Ramsbottom to say, that his judicious conduct had materially contributed to the settlement of the same.—Indeed, on every occasion when there had been meetings of the company, had Mr. Ramsbottom been of his party, and but for his assistance and judicious advice, he hardly believed the

affairs of the company might have been kept open for a long time yet to come, and he felt that the compliment the proprietors had paid Mr. Ramsbottom, whilst it reflected credit upon him, evinced that a straightforward line of conduct was duly appreciated by shareholders, even when they, as in the present case, were losers by an unfortunate speculation, and the pleasure he had in stating this opinion of Mr. Ramsbottom's conduct, and of that of the other gentlemen with whom he had been associated, was increased, inasmuch as he was, as the proprietors, no doubt, recollected, one of the four or five parties who joined the directors, merely to assist in winding up the company's affairs; this, at the desire of certain of the proprietors, and at a time when they thought the directors were not proceeding so quickly as they ought, he (Mr. Richards), therefore, felt it both a pleasure and a duty to say that both Mr. Ramsbottom and Capt. Road had been indefatigable in their endeavours to effect the end which had at last been so satisfactorily accomplished.—The meeting then separated.

SOUTH-EASTERN AND DOVER RAILWAY.

A special meeting of the shareholders was held at the London Tavern, on Friday, the 21st instant, for the purpose of raising additional capital, necessary for a full development of the advantages of the undertaking, in pursuance of the several Acts recently passed, JOSEPH BAKERDALE, Esq., in the chair, who stated that the meeting had been convened to take into consideration the expediency of making a branch railway to Maidstone, and another to the Bricklayers' Arms, in the Old Kent-road; and, further, to consider the propriety of raising additional capital for other purposes. The amount of money required by the directors was 177,272*l.*, which they proposed to raise either by loan notes, or by debentures on the Bricklayers' Arms branch.—A resolution to this effect was then proposed, and, after some discussion as to the terms upon which the money was to be borrowed, passed, with but three dissentient voices.—The next business was the consideration of the construction of the Maidstone branch, which underwent much discussion.—The CHAIRMAN stated, that the proposed line had been surveyed by the engineers (Messrs. Stephenson and Bidder); that its distance from the main line would be about ten miles, the total estimated number of passengers 77,000 per annum, and the total net income 24,315*l.*—The proposition met with opposition from a few of the proprietors, but ultimately, on being put to the vote, was carried by a large majority.—Other requisite resolutions having been agreed to, the CHAIRMAN, in the course of the discussion, stated, that within ten days, steam-boats would be plying between Folkestone and Boulogne, which would enable passengers to accomplish the distance from London to Boulogne in little more than six hours and a half. The system of low fares lately adopted had done much to benefit the railway. He believed that the whole line would be opened to Dover before December next, and that the branch line to Maidstone would be completed within twelve months after obtaining possession of the land.—After passing a unanimous vote of thanks to the chairman, the meeting adjourned.

PARIS AND ROUEN RAILWAY COMPANY.

A meeting of the shareholders in this company took place on the 8th inst., but there not being a sufficient number present to render the proceedings legal, another is arranged for the 6th of August next. The directors' report was, however, read (for the information of those present); it first alluded to the establishment in June, 1840, of the company, and the premises held out by the directors, that in three years the greater portion of the works would be completed, and that the capital and advances from the state would be amply sufficient for completion, and a satisfactory interest returned; it then stated that, notwithstanding the delay and difficulties which had occurred, the directors had been enabled, in less than three years—viz., in May last, to announce the opening of the line; the expenditure to the 30th June having been 1,835,033*l.* To meet the further demands on the company, there was, with the remainder of the loan from the state, the reserve fund and balance at bankers, 311,635*l.*, which the directors considered would be amply sufficient.—The report of the engineers, Mr. Locke, was here read, which merely explained the state of the works, which was highly satisfactory, and the directors' report continued. It stated that the directors should take immediate means to expedite the repayment of the guarantee fund, which ought to have been restored by the Government long ago. The traffic of the line, which commenced on the 9th of May, had given a result, up to the 30th of June, of 80,794 passengers, and a receipt of 35,821*l.* In the latter sum was included some extra charges for luggage, horses, carriages, and parcels. They considered this return as upon the lowest scale, since, properly speaking, they had as yet done nothing but convey passengers, the carriages of parcels having scarcely commenced, and that of merchandise not having been organized. Further, the arrangements entered into with the companies of the "Messageries Royales," and "Messageries Generales" were not yet in operation; and they could not do otherwise than expect an increase of profit from them. Novelties, however much they might be said of, had little influence on the success of a railway of considerable extent. It was not by gratifying temporary curiosity only—the movement of casual holidays—that such a line should look for its receipts. It involved too many interests, it affected the habits of too many, to come at once into operation. It must be the work of time, and of constant study of various considerations, which could not be premised; but the substantial advantages of this species of conveyance, and the preference which it must command over all other methods of communication, were sure pledges of its progressive improvement. There arose the consideration of the scale of charges, which, though some slight objections had been made to them, were considered, upon the whole, to operate well, and to meet the various circumstances of the line.—It appeared, with respect to income and expenditure, that the latter did not amount to one-half of the return; and the profit realized allowed the directors to recommend a dividend equal to 5 per cent. upon the whole funds, from the commencement of the undertaking to June 30.—They assured the proprietors that the transport of goods would be immediately commenced, under such terms of rapidity and economy as, while such traffic flowed to the company large profits, would draw to the line the greater part of those goods formerly conveyed on the common roads. Out of the net receipts on the traffic account, they proposed to distribute the sum of 10,644*l.* 1*s.*, which was after the rate of 3 francs 35 centes per share, which would be payable on and after the 10th of August next.

GOGHERDAN MINING COMPANY.

The annual general meeting of the shareholders in this company was held at the office, Mr. BROWN in the chair.—From the manager's report, it appeared there had been a loss on the year's workings of 1042*l.* 10*s.*—the principal cause of which was the long-continued drought of last summer; it delayed any return from Cwmsymyng until October, and greatly impeded the underground works, especially in the western part of the mine, while an important discovery had been made, either by the dry trials at Cwmsymyng or at the western ground at Darran. There were yet various points in both mines of good promise; there was a great extent of old bottom at Cwmsymyng yet to be examined, and much high ground, both eastward at Darran and west at Cwmsymyng, which deserves full trial, and as the heavy cost of machinery had been incurred, and which would drive the mine to a great depth, the greatest progress of the works must be maintained. At Cwmsymyng, from Siliam's shaft, a cross-cut was driven three fathoms to the lode, and extended eastward sixteen fathoms on it. Some ore was found, but not so much as in the fifty shaft; it had, therefore, been discontinued, until something is met with in the fifty. At the fifty fathom level, east of Siliam's shaft, a cross lode had been met with, of a favourable appearance. The fifty shaft from Siliam's, would, in a few months, communicate with Pines shaft, where a great length of old bottom would be opened. In the thirty-five fathom level, west of Siliam's shaft, there was a fine productive lode—richer in silver than in any other mine in the neighbourhood, and which would cover about two-thirds of the cost. In Darran mine some very good lead has been laid open at the twenty fathom level, and the thirty and fifty fathom levels had been driven to ground which would pay well for staying away, although the owners had by no means realised the expectations held by all miners who knew the district, and but little encouragement had been met with; there was hope they might still be rewarded for the fair system of trial pursued. The following are the costs and returns for twelve months, to the end of December, 1842:

Date.	Lead mine.	Costs.	Lead.	Profit.
1840.				
January and February	10 10 0	100 0 0	100 0 0	0 0 0
March and April	10 10 0	100 0 0	100 0 0	0 0 0
May and June	10 10 0	100 0 0	100 0 0	0 0 0
July and August	10 10 0	100 0 0	100 0 0	0 0 0
September and October	10 10 0	100 0 0	100 0 0	0 0 0
November and December	10 10 0	100 0 0	100 0 0	0 0 0
Total	60 10 0	600 0 0	600 0 0	0 0 0

Thanks being voted to the chairman, the meeting separated.

GROVER'S BANKING COMPANY.

The seventh annual meeting of this company was held on Tuesday, the 10th instant, at the Jermingham Arms Hotel, Bedford, the chair being taken by ARTHUR DODD, Esq.—The report of the directors stated, that the bank continued to be in a state of flourishing prosperity, and that the accounts for the past year show a clear profit of 1000*l.* 10*s.* 10*d.* The directors, therefore, recommended the same rate of dividend as in last July—namely, 15 per cent. for the half year ending June 30, 1843, added to the 5 per cent. for the previous half year, making the annual rate of 10 per cent. for the year, and leaving a balance of 1000*l.* 10*s.* 10*d.* to the credit of profit and loss. The guarantee fund (created in the Government securities) has also been raised to 10,000*l.* during the year.—It was incidentally noticed that the deposits are, at the present time, much larger than at any former period since the establishment of the bank.—The report was received with great satisfaction by

the numerous proprietary present, who evidently thought it not unlikely that a reduction of the dividend might take place, from the unfavourable state of commercial affairs, and it was adopted without a dissentient voice.—The retiring directors were then re-elected, and Mr. Graham, of Colchester, Esq., appointed in the room of Mr. Oliver, of Wellington, who retires on account of ill health; after which, votes of thanks to the directors were passed, and the meeting dissolved.—A large party of the shareholders dined together at the Jermingham Arms after the business of the day was concluded, when the chairman remarked that the report had omitted to notice that the income tax would be paid by the bank, in addition to the dividend.

NORWICH UNION LIFE OFFICE.

The annual general meeting of the members of this society was held at the office in St. Mary's-street, Norwich, on Friday, the 14th inst., E. T. BORTH, Esq., V.P., in the chair.—The SECRETARY read the advertisement convening the meeting, and the minutes of the last general meeting, and a subsequent resolution of the directors, relative to the increase of the salary of the secretary from 2000*l.* to 2500*l.* per annum, which had been recommended at a general meeting in 1842. This resolution was proposed by the Rev. J. BATHURST, seconded by Mr. E. WILKINSON, and carried unanimously.—The accounts were then read; they consisted of the annual cash account from July 1, 1842 to June 30, 1843; the capital account, as it stood invested on the 30th of June, 1843, and the liabilities of the society to the same date.—The CHAIRMAN congratulated the meeting on the prosperous state of the society's affairs; 344 policies had fallen in during the year, 350 new policies had issued, and the capital of the company had increased 34,000*l.*—W. J. U. BATHURST, Esq., then moved,—"That the position of the Norwich Union Life Insurance Society, as evidenced by the statement of its progress during the year ending June, 1843, is very satisfactory to this meeting, and such as fully entitles the institution to a continuance of that support which it has hitherto received from the public."—Thanks were then voted to the chairman, and the meeting broke up.

COMMERCIAL BANK OF LONDON.

The third annual general meeting of the proprietors of this bank was held at the office, Moorgate-street, on Monday, the 17th instant, at which a dividend at the rate of 4 per cent. only, but clear of income tax, was declared out of profits. The rate of dividend last year was 5 per cent., so that, less the allowance for income tax, this was a reduction of 1 per cent. The net profit amounted to 3130*l.*, which, after declaration of a dividend at 4 per cent., income tax free, on a paid-up capital stock of 50,000*l.*, left a balance of 1900*l.* It was stated in the report of the directors, with truth, that the unfavourable condition of trade during the last year, accompanied, it might have been added, with settled low prices of commodities generally, which, of course, rendered what should also have been in ordinary a redundant state of the circulation—all contributed to make banking business less profitable than in the regular order of affairs it should be. With the extremely low rates of interest prevailing for a considerable time past, and that abundance of capital abroad which made its profitable employment extremely difficult, if not almost impossible, consistently with safety, it is no small evidence of good management, that the bank should have been enabled to realise a moderate share of profit, and it is creditable to the prudence of the board of directors that they should determine to reduce the dividend below the level of what they had accomplished rather than divide to the last hundred of the amount made, or speculate upon future profits.

Mr. HOWLAND, in the course of the discussion which followed, pressed that, for the future, the report, with the accounts, should be furnished to the shareholders some few days previous to the meeting, with the view of preparing their minds for any question that might be raised during their deliberation on the state of their affairs. He intimated that Parliament, whose attention was turned to the more effectual regulation of joint-stock companies, had it in contemplation to make this one of the essential regulations in the constitution of such companies when private bills are introduced.

ST. KATHARINE'S DOCKS COMPANY.

The half-yearly general meeting of the proprietors in this company was held at the Dock House, Tower-hill, on Tuesday, the 19th inst., for the purpose of declaring a dividend for the last half year, the election of directors, &c. Mr. T. TONKS was in the chair, and a dividend of 25 per cent. for the half-year was agreed to. The directors were elected unanimously, and a vote of thanks passed to them for their services; the same compliment was paid to Sir John Hall for his invaluable exertions, as Mr. TONKS described them, in extending the business of the docks, which we may observe, *ex post facto*, are now crowded with ships from almost all parts of the world.—The routine business of the day having been disposed of, the meeting adjourned.—The directors nominated in the place of those who retire for one year, in rotation, are Messrs. A. Colvin, T. Larkins, R. M. Calmout, and A. Ridley.

BRITISH SMELTING COMPANY, AT ALICANTE, IN SPAIN.

This company, which commenced only sixteen months since, bids fair to realise most extensive profits.—For, notwithstanding the disadvantages and preliminary expenses necessarily attendant on a new company, more particularly in a foreign one, in the outfit, carriage, &c., for the officers and others, the British Smelting Company have already realised profits amounting to 45 per cent. on a very small capital employed. The cost of the buildings and works has been about 2000*l.*, including expenses of levelling, forming, &c. the machinery, which cost about 1000*l.*, comprises a steam-engine of the best construction, washing-machines, &c.; there are six reverberatory furnaces for casting, one for reducing blisters to lead, four cupels, and fourteen for refining. The quantity of silver delivered to the various contractors up to April 30 last was 273,736*oz.*, yielding to the company about 27,000*l.* and two cargoes of lead had been shipped to England by the *Ocean Child*, which vessel was unfortunately lost, but the crew saved; the insurance of 2000*l.* was recovered thereon; and 100 tons, next per *Matilda*, arrived safely, and sold well. The profit would, it is said, have been more than double had the company possessed sufficient funds to avoid losses, at Spanish interest, of 1 per cent. per month, and ship the silver on their own account; the amount of interest thus paid amounts 2000*l.* have been paid for chemists' salaries and passage money of workmen, an expense not likely again to occur; and the directors, impressed with the necessity of increasing the capital, in order to commence and develop the full resources of the undertaking, propose to increase the capital by the issue of 500 more shares, of 50*l.* each, to be the original; and the directors feel full confidence in the wisdom of this step, and in the future prosperity of the concern.

NEW COMPANIES.

[In noticing such new adventures as may from time to time be brought before the public, it is hardly necessary to observe, that we must not be considered in any way to admit the correctness of the information conveyed; which, unfortunately, too often requires much cautious investigation; but merely lay such particulars before our readers as we may glean from prospectuses, advertisements, &c., to call their attention to, and make them acquainted with, the subject.]

BRITISH WATCH AND CLOCK-MAKING COMPANY.

This company, a bill for the formation of which was thrown out by the House of Commons on the 21st March last, notwithstanding which rejection, the directors have determined to proceed, under the advice of counsel, in carrying out the objects of the intended company, by means of an certificate issued from the trustees, and they state that they have not only retained their former friends, but have gained many additional supporters. It may be remembered, this company was originally projected with the view of carrying out Mr. Ingham's invention of machines for manufacturing the wheels and pinions of watches, clocks, and chronometers, in vast quantities, and in a very short space of time; the plan has been superseded by a large body of the trade as totally impracticable, being incompatible with the delicate study and finish required, and some parties have even gone so far as to say that such machinery exists.

A testimonial is, however, inserted in the report signed by the Attorney-General and professors of mechanics and mathematics in the University of London, King's College, Civil Engineers, &c., certifying as to the science and capability of the machinery, and whom we are the names of Barlow, Evans, Hewitt, and Foulerton, attached to the prospectus, it certainly looks like a *bona fide* undertaking. The capital proposed is 200,000*l.*, in shares of 50*l.* each, deposit 10*l.* per share. Subscribers may obtain certificates bearing interest at 5 per cent. per annum, which may, at any future time, be exchanged for shares. The machines are vested in the directors, and are guaranteed as security for the capital subscribed, the interest having accepted shares in full discharge of all its interest. The objects said to be attainable are more accurate and durable construction, lower price, and to secure this new almost lost manufacture to Great Britain.

THE GUANIAN CHIMNEY-SWEEPING ASSOCIATION.

A prospectus is issued as of a company, under the above title, for securing the use of new and efficient machinery for chimney-sweeping. This company is based upon the principles, and has taken the place, of the Patent Chimney-Sweeping Association—offering the same, or superior, advantages, and guaranteed by the influence and capital of a large proprietary. Its objects are to assist in carrying out the labours of the legislature, in preventing the employment of children in the offensive career of chimney-sweeping;—for employing the best machinery for the purpose, and offering rewards for new inventions of this description, and to provide advice for the education of the children of chimney-sweepers' operatives. The capital proposed to be raised is 20,000*l.*, in 2000 shares of 10*l.* each, with power of re-issuing if necessary;—the offering by persons in the trade, of small capital, an opportunity of participating in the benefits likely to arise.

It will also be very necessary that a furnace manager should give his best attention to the *quantity of cinder thrown off by a furnace*; for, if it should be *too small*, and not perfectly close and fluid, it would not be sufficient to protect the revived iron from the influence of the blast; this would be the case in using very rich ores in coke furnaces, into which many millions of cubic feet of air are introduced daily—the remedy would be, to use a corresponding portion of poor mines, or else to return some grey furnace cinder, so as to reduce the yield of iron to about 10 per cent. on the charge of mine, and which may be readily done by referring to the "Elementary notes of Materials." With charcoal furnaces a much larger yield of iron on the charge can be advantageously obtained, but this is in consequence of the perfect fusion of the earthy constituents in such furnaces, by means of the potash contained in the charcoal used; a very small flow of cinder suffices, in this case, to protect the iron from the comparatively weak blast of charcoal furnace; and the same, or at least similar, results would be obtained in coke furnaces, provided a corresponding portion of potash or soda ore made use of by being the constituents later as pig-iron a claim of fusion on iron obtained is the fuel employed; the pig iron would also be greatly improved in quality by such additions in the smelting process, and at the same time a very large quantity of limestone may be disposed with, and, consequently, a considerable portion of fuel and blast also, to produce any given quantity of iron. In charcoal furnaces there is very seldom a ton of cinder produced to the ton of iron made, whilst, at coke furnaces, the weight of cinder to the pig iron is frequently as two to one—with some few exceptions, in the use of *hot blast* and *black-band* ironstones. Hence is, therefore, considerable scope for improvement, as well as to quality of iron, as to economy of management, and that in the fairest possible manner—namely, by a less expenditure of materials to obtain a specific result, and that without encroaching upon the present hard earnings of the operatives employed. From the result of numerous analyses of furnace cinder, of all qualities and sources, from the very best, to the very worst, it appears that, when the equations of silica, lime, and alumina are to each other as 5, 2, and 3, the value will be clear and colorless, and the iron should soft and granular—equivalent previously existing in the furnace; but should the earthy constituents consist of 5 silica, 2 lime, and 1 alumina, then, the cinder will appear, on looking through a piece of it, drawn out thin, of a reddish, or grey, color; such a cinder will indicate a hard, but serviceable, iron, from the blast of the furnace (if also previously worked well, i. e., grey) will have a tendency to fall off with freedom as to quality; and should there be a very large mass of silica in the mass, it would very soon put the furnace completely out of order, and would finally "go to the top," as it is technically said, were not a motion to take place by the melted iron extruding as a cinder round the top-pan and in the middle of the furnace, becoming again oxidized by the blast, so as readily to form a mixture with the mass of silica, which composed (the silicious waste of iron), acting as a powerful flux upon the impurities found materials, will soon remove the constituents from the furnace, in the shape of a black smothering cinder, always described; but this would have to be done at an immense expen-

of good materials, for furnaces will often "sweat" for days, and sometimes weeks, together; and all this is owing to the infidelity of the residuary earths—principally silica—in this district—at the existing temperature of the furnace. The remedy in this case will be an addition of such materials, as flint, as may, per se, increase the fusibility of the residuum, or else by augmenting the quantities of lime and alumina, or reducing the silica, until the proportions of these earths are—1 alumina, 2 lime, and 3 silica, or as nearly as is possible, for, in these proportions, these elements readily fuse into a complete and perfect glass, without the aid of protoxide of iron—consequently, in forming his furnace charges, the smelter should refer to his analytical tables, in order to ascertain the quantities of silica and alumina (which are the principal residuums of the mines and fuel of this district of country, and in most other carboniferous formations) in the materials required to yield a ton of pig-iron; and should the alumina amount to one third the weight of the silica, he will then only have to employ as much limestone as will yield, in calcine lime, twice the amount of alumina; the resulting clinker will then be a cohesionless compound, readily fusible, at the usual temperature of a blast-furnace, without the aid of protoxide of iron, and the process will be perfect and unchangeable, until one or other of the earths in question be reduced or augmented in quantity, so as materially to fall away from the relative proportions above enumerated. Should the alumina in the residuum not amount to one third, the weight of the silica, an adjusting flux, or mixture, should be employed to supply the deficiency—namely, a mine, containing an excess of alumina, or else a due proportion of marl, fire-clay, shale, or jasp; and if the silica should be deficient in quantity (in which case the clinker will be thick andropy, although, perhaps, of a good colour, and not flow readily from the furnace), silica, or other materials, yielding an excess of silica, should be employed, until its proportions are to the other residuums, as above stated. The quantity of lime to be employed in the process under consideration will necessarily depend upon the amount of silica and alumina in the mine, fuel, and adjusting fluxes used in the furnace; but, in all these calculations, it should be strictly observed, never to introduce mixtures in coke furnaces that may contain more than 50 per cent. of iron, or there will be a deficiency of clinker, and a deterioration in the quality of the iron result—more than 20 per cent., or there will be a useless excess of clinker, and, consequently, a considerable loss of fuel, blast, and fire, and a loss of quality in the iron also; between these two extremes, so it may be termed, every species of pig-iron may be obtained that an ironmaster could desire.

THE IRON TRADE—ITS PRESENT STATE AND PROSPECTS.

The quarterly meeting of gentlemen connected with the trade in the Dudley district took place on Saturday last, and, like the one which preceded it at Birmingham, excited much interest. We mentioned, in our notice in the *Journal* of last week, that iron had been further reduced 10s. per ton; such, however, it appears, was not strictly the case, for, although there was a fall to that amount in some descriptions of iron, merchant, bar, hoop, and sheet, remain the same. Although the present prices are profitable to all, and, to some of the small masters, absolutely ruinous, there has been no general attempt to reduce the men's wages, several large proprietors declaring that they are already too low. With regard to the threatened suspension of ordinary labour, a feeling of dissatisfaction against the masters is by no means general; some few exhibit an unreasonable feeling, but the greater number would gladly go to work at the present wages—viz., 3s. per day thick coal getters, and 2s. per day to the workers of thin coal. The average work, however, is not above two days per week, and the majority of the labouring population and their families are in a most distressed state. It is but justice to the ironmasters and resident gentry, here to state, that, by the establishment of soup houses, and the formation of roads, they are trying every means to mitigate the distress occasioned by the present unexampled state of things, and such endeavours are most joyfully welcomed by the honest and industrious workpeople; but, alas! at best, they will have but a temporary effect. By Tuesday last, a very general belief appeared to exist, from the strange apathy exhibited, by the colliers, in most instances, quietly submitting to the reduction of 6d. per day, that there is an extensive organisation going on—that there is a perfect understanding between South Staffordshire and the north of England—and that a general conspiracy is on foot for an extensive and simultaneous strike in all the iron and coal districts. Up to the present time, it is satisfactory to know, that not a single individual, notwithstanding the adverse distress, has been brought before the magistrates, charged with any offence arising out of the present unhappy state of affairs. Thus, Atwood, Esq., has announced his intention of coming forward with a plan for a great popular movement, for the purpose of restoring tranquillity and prosperity. He considers he has adopted a plan calculated to unite all classes and non-classes, and all the different classes of the kingdom at present seeking different and opposing ends. Since it has become known that he has a plan for uniting the population in "one great legal confederation," the people in the neighbourhood of Birmingham are waiting with intense anxiety for a detail of the proposed plan, and the greatest interest is excited to ascertain by what means it is proposed to unite the dissident elements at present unhappily existing throughout, not only the mining districts, but the country generally.

The deputation of ironmasters from South Staffordshire had a long interview on Wednesday morning, by appointment, with Sir Robert Peel, for the purpose of presenting a memorial from this district, setting forth the extreme state of depression under which the iron trade is at present labouring, and the condition of the working population. The deputation was accompanied by Lords Hatherton and Lytton, and the members for South Staffordshire and Wolverhampton. The Chancellor of the Exchequer, the Secretary for the Home Department, and the President of the Board of Trade, were present at the interview.

The business was opened by the chairman of the deputation, James Foster, Esq., who stated the extreme falling off in the demand for iron, the great depression in the price, and the consequent reduction in the wages of labour and construction in the means of employment—together resulting in a condition of the workmen which could not be contemplated without serious apprehensions. It was stated, that the object of the deputation was in no way connected with any intention of soliciting support from the Government, by way of pecuniary assistance, to enable them to continue their works in operation; but to discuss the probability of the application of any measures by which the internal trade of the country generally could be improved, and the population maintained in a more healthy state of employment. The progressive reductions in the price of iron, the rate of wages, and the state of depression, as exhibited in the commerce of the poor who in the districts comprised in this district, were stated to extensive detail by other members of the deputation; and the operation of the American and the various continental tariffs was alluded to, setting most particularly on the iron trade of this country. It was explained, that a strong impression prevailed, that the great falling off in the exportation of iron to the United States, resulting from the restrictions of the late American tariff, was mainly attributable to the continued exclusion of American iron, by the operation of the late exportation of iron to the United States, and which a moderate trade duty would be calculated to remove. In conformity with this view, Mr. Thackeray stated the result of his deputation to a recent visit to the United States, and the improbability of any treaty being negotiated without some modification of our own laws on this point.—Sir Robert Peel stated that he should most willingly give his best attention to any resolution that might suggest themselves to the minds of the deputation; but that, he feared the production of iron had been forced, by the requirements for railroads and other uses, so much beyond the ordinary demand, that now that these sources of consumption had been exhausted, he could hold out no prospect of immediate improvement from any measure within the power of the Government.

The members of the deputation stated, that they were much surprised in the conclusion that the deputation under which trade was suffering, as well as that affecting most other branches of production industry, was attributable to the great falling off in the demand, occasioned by the various operations of our present money laws, and the consequent want of a sufficient stimulus to maintain a range of prices adequate to the discharge of the fixed public and private liabilities which there is large a proportion of the cost of production in this country; that, without some change of these laws, there was, in their opinion, but little hope of any improvement in the condition of the working classes, which would gradually approach to that of the other classes in Britain.—Sir Robert Peel expressed his dissent from these conclusions; and, after thanking the deputation for the important and judicious manner in which they had stated their views on the important subjects which had engaged their attention, the meeting terminated.

So much for the anxiously expected interview with Sir Robert. It certainly required no great prescience to foretell the result—an expression of sympathy for the colliers, an admission to over production, and a promise that the interests of the iron trade should receive the best attention of Government, is just what any man who has traced the expediency moves of the hon. baronet would expect. The interview appears to have been—at least, on the part of Sir Robert Peel—a mere form—a farce; not the slightest hope was even held out that any steps would be taken by the Government for the amelioration of trade; and, when his attention was particularly called to the present state of the tariff, and the evils resulting therefrom, he evaded the question in his habitual slippery way. The fact is, the iron trade has nothing to hope from the measures of the present Government; and some stir must be made by them on their own behalf.

Among the few proposals which have been made to increase the demand for iron, and thus assist in the amelioration of the present unhappy situation of nearly all parties connected with it, is one from Mr. Rowed, of 7, Stanhope-place, Borough-road, for constructing sub-sewers, as an auxiliary to the present ones. These he proposes to form of cast-iron ribs, fixed into a cast-iron keelson, with a crown plate of the same material, the whole formed to fit into each other without screws or bolts. These sub-sewers are to run along the north and south banks of the Thames, and to empty themselves into large reservoirs in the low parts of Kent and Essex. The quantity of the richest manure thus obtained, and which is, at the present time, productive of only mischief, by causing unwholesome effluvia all down the river, would, it is calculated, return, at least, 1,000,000, sterling per annum, and the cost of these London sub-sewers alone would be about 7,000,000l.; and, as it follows, as certain, that Liverpool, Bristol, Hull, and other large towns, would follow as profitable an example, the benefits to the iron trade which would be produced are incalculable.—In this proposal there is certainly nothing chimerical, the sub-sewers could be formed without a single dam, and the value of the deposit obtained is well known; Mr. Rowed offers the ironmasters, if they will raise a subscription of about 500l. to make a plan and estimate from actual survey, and distribute 10,000 pamphlets, containing a prospectus on the subject; we think it a most happy idea, and well worthy the consideration of all parties connected with the iron trade, and, we were going to say, of the Government; but, alas! there is no good to be expected from them.

The threatened strike of the colliers has not, up to the time we write, taken place; some few detachments, as it were, of the general body have refrained from working during the past week, but it appears there is not sufficient organisation among them for a general suspension of work, which is, however, surely calculated upon. The Lord Lieutenant of Staffordshire (Earl Talbot) is taking measures to the best of his ability, and the powers he possesses for the preservation of the peace, and strong detachments of the constabulary are on the alert, to be concentrated at any particular place at a short notice. The next few weeks are looked forward to with the most intense interest.

SUGGESTIONS TO IRONMASTERS ON INCREASING THE DEMAND FOR IRON.

We last week noticed the principal features embodied in the pamphlet of Mr. Mackintosh, reserving to ourselves a further review, more especially that part treating on the iron trade of Staffordshire; and, as considerable excitement prevails on the subject at the present moment, it may be well that we should continue our notice, so that the main points which present themselves may be considered at the same time. We have already advanced our opinion on the pamphlet under review, and, with the same conviction we entertained on a first perusal, we feel that, while there is much worthy of consideration, yet the views of the author are of far too theoretical a nature to be accomplished. We are told that "the iron mines of this district, not being so rich in quantity of mineral as those of Scotland and Wales, nor the rate of wages so low, the ironmasters might remain with comparatively little trade, though others benefited vastly by the increased use of iron. To place the districts (says our author) on an equality, wages must be lowered in Staffordshire, and there must be more skill in production." It is hardly necessary here to observe that the main cause of complaint which exists is, want of employment and reduction of wages—which, however, our author considers, should be lowered.

The argument raised by Mr. Mackintosh, of bringing about a change in the habits of the Staffordshire collier or ironstone getter, by introducing Cornish miners into the iron district, he will excuse us in saying, carries with it an absurdity for which we were not prepared. We believe there are few—not immediately connected with either district, whether Cornwall or Staffordshire, and we might even add Scotland and Wales—who possess more information derived from personal observation than ourselves; and we have no hesitation in saying, that, without the adoption of some "Owenite" principle (if principle it can be called), any attempt of the nature contemplated will be futile. In following out the comparison, as regards the mode of living by the Cornish miner with that of the Staffordshire collier, such by no means holds good, while the projected system of barter can never exist, except in a community such as was contemplated by Mr. Robert Owen. The tally or truck system, and the plans proposed by our author have already proved. The idea, moreover, by altering the mode of paying the miners, by the introduction of the Cornish method (that of a Dutch auction), that the workmen would be better satisfied, or that he would get on shilling more per week, is too absurd to comment upon.

Conversely, in many instances, already exist—by not by public bidding, yet at a rate determined upon between the employer and employed. Our author, however, tells us, that, in his opinion, "if work were let by auction, it would soon destroy the prejudice of the miners, and they would find this great advantage—that some need be out of work, and some need work short hours." If this remark be at all applicable, it can only be so to those in employ; and we can very well understand that, where 5000 are now at work on an average of two or three days per week, that, by employing only one-third or one-half, the latter would be in full work, while the remaining part would, with their families, be destitute and starving.

This is a vicious and impolitic course to recommend; and, in the present state of the iron trade, we can only express our surprise that such should have recommended from any party who professes to have directed his attention to the subject, and who verily has entered into all its details, however mistaken may be his views on certain points. Our author also complains of the present system of raising or lowering the wages of the operatives, as the state of trade is successful or otherwise, which, as we have before observed, we think visionary and impracticable.—Indeed, the views entertained by the author on this point, he is himself half disposed to admit, would be attended with difficulty in being carried out. For instance, he not only calculates on an agreement of few years existing between the master and man, but expects that canals, railways, and telegraphic lines, are to fall into the measures. Mr. Mackintosh next adverts to the subject of "an increase of skill in production," and suggests that premiums should be offered for designs; and, as an illustration, cites the "construction of furnaces, with a view to economy in fuel," as one case in which he would direct attention. This, with other matters appertaining to the blast-furnace, he demonstrates by a proposition as to the form he would recommend, the mode of changing the materials, and the mode of introducing the blast. The preparation of materials, such as calcining the ironstone, roasting, and also attention being devoted to the fluxes, he considers important. We may here refer to the valuable papers which have appeared in our columns, and furnished to us courteously by Mr. R. B. Rogers, of Nottingham, which Mr. Mackintosh would do well to peruse, and he will find that much talent and experience is directed to the subject, and that there is no earnest need on the part of those interested, to say anything of the nature of the subject in a perfunctory point of view.

In conclusion, the author very modestly observes that in committing his pamphlet to the press, everything which he has proposed "is merely offered for consideration," and to be regarded merely as containing suggestions. He freely confesses that his experience is limited, and in adhering to this doctrine, is influenced by the state of the iron trade at this season, rather than from any vain desire or presumption on his part to dictate to others who ought to be better informed, and who are more immediately interested in the subject at hand. With his last paragraph we close our notice, again thanking him for drawing attention to the subject, and in the hope that others will follow in his wake. "If says he, I should be the worse simply of writing others to consider what may be accomplished by effort, it will be very gratifying, as there are many who, if they would devote a little time and thought to the matter, could guide others into the right road to prosperity."

ORIGINAL CORRESPONDENCE.

MINING IN SPAIN—No. V.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—In my last, I gave you some idea of the efforts making by the Cartagena smelters to secure to themselves an adequate supply of coals, at a reasonable price; and the subject being extremely interesting to them, as well as ourselves, I have thought it best to resume it. The disclosures already made in your columns have, indeed, taken some people in the City (who have connections in the North) by surprise, not having the least idea that Spain contained so many coal deposits as it is now proved she does—and, at the same time, requires such extensive supplies.

As a groundwork, allow me to state, that, as early as March 4, 1832, it was by royal order established, "that, as the Government was desirous of encouraging the working of the abundant coal mines existing in the kingdom," the following regulations should be observed:—1. That the exportation of home coals should be free of duties, whether general or municipal; 2. That the said coals, brought from one port to another in the Peninsula, under the Spanish flag, should also be free of all duties and dues; 3. That foreign vessels shall be specially allowed to bring Spanish coals from one port to another in the Peninsula, on the payment of 6 per cent. on the value of 3 rials vellon per quintal (100 lbs.), without any other due or demand; 4. That the admission of foreign coals shall be permitted—if in foreign vessels, on the payment of 4 rials vellon (10½d.), and 3 rials in national ones, per quintal; and, 5. That a school shall be established to teach the mode of digging coals in Asturias, and that the Guadalupe Company be invited to introduce improvements into their mode of extracting coals from their collieries of Villanueva del Rio.

Seriously had the new mining era commenced, when a general complaint was raised by the smelters, who declared that they were unable to purchase and reduce coals, owing to the high price of coals, which, consequently, they could not afford to consume, unless on the best qualities of minerals. It, in fact, became evident that the ordinary supply was wholly inadequate. The Central Junta, in that true patriotic spirit which has uniformly guided the acts of its enlightened members, considering this subject one of the greatest importance to the future prospects of the provinces, took it up; but, before stirring it, or offering an opinion of their own upon a matter so complicated and delicate, they determined to collect together all the requisite materials, and, besides, receive reports from intelligent and competent persons. With this view, they named a special committee of their own members, who were instructed to inquire into and report upon:—1. National coals; 2. the means of supply, quality, prices, freights, and duties, when destined for the smelting-works in and near Cartagena; 3. the objections to, and advantages of, them, compared with British coals. The members named for this purpose were:—D. Tomas Valerino (president), D. Luis Lapsaburo, D. Felix Penosa, D. Nicolas Toledano, D. Manuel Sagrario Boley, and D. Romualdo de Castro (secretary); and, after the intelligence, courage, and impartiality, with which they prosecuted the labours confided to them, it is but fair that their names should be recorded among us. Subjoined is their report, dated Cartagena, April 11, 1843:

The coal question is one of vital importance to the mining interest of Cartagena, because upon it depends the success of the smelting works, and upon their prosperity and increase again depends the advantage which the miner is to derive from his toil and the outlay of his capital. The smelting works already established upon our coast, only from Adra to Valencia, amount to twenty-seven; and, most assuredly, they will not suffice if our mines should be found to contain that abundance of metals which there is every reason to hope they do, agreeably to the samples obtained, and the little comparative extent of the existing works—more especially if we should succeed in turning to account what is called the "black mineral." I state the yielding of silver obtained from it, by these experiments already tried, has been sufficiently encouraging to lead us to believe that we shall.

The home coals, with which merchants have hitherto been able to supply us, have been confined to those procured from Asturias, Seville, and the Biscayan Islands. Of these three points the only one that merits attention is the first, in consequence of the means of supply enabling the proprietors to enter into a competition with other suppliers, although, it must be acknowledged, that this description of coal generally comes in small pieces, and its combustible strength, at least at present, is smaller than that of British coal—agreeably to the opinions of intelligent persons who have made experiments, so as to ascertain their respective qualities. In order to obtain the effect produced by a quintal of British coal, a larger quantity of Asturian is required; but, even although this were not the case, it is evident that it cannot compete with foreign coal, because the freight amounts to 5 or 6 rials, landed here, which makes it come to the consumer at more than 10 rials (1s. 10½d.) per quintal. The Seville coal is small, and also impure, on account of the prime cost exceeding 11 rials. The quality of that from Malaga, and the little produce of some other mines, not enumerated, relieve us from the necessity of making either, as the Asturian coal, in the extreme case, is the only one found suitable for the consumption of our smelting works.

The reduced duty of 2 and 3 rials paid on the quintal of British coal is still excessive, since, as it falls upon an article which, even when the prime cost is reasonable, on reaching the smelter, does not come to less than 25 to 30 rials per quintal. This estimate will be found sufficiently correct, for the first cost of a ton of this class of coal on board (which ton is equivalent to 22 quintals), averages 75, or 35 rials, and the freight 12s. to 15s. The prime cost, therefore, here, on the most moderate estimation, amounts to 14 rials per Spanish quintal—adding to which the duties and expenses of unloading, the result will be the 25 to 30 rials, as before stated. The consequence of this is, that smelting furnaces are unable to use the great sort, which, besides, they are obliged to have brought to them from the Sierra Almaguer, and other places, whereby they are precluded from the possibility of purchasing the produce of many of our mines, even at low prices, for, if they could, the depreciation does not compensate the exorbitant charge by fuel. Hence, it is to be deduced, that, so long as the smelters do not use an adequate return for their toll and disbursements, they will discontinue their workings, and, unless they can obtain the first and essential materials at a reasonable rate, the consequence must be, that they will be obliged to give up their establishments, and, with them, remove those factories whose ruin they have hitherto entertained, founded, as they are, upon the intelligence and good management of their own enterprise, and supported by those of the mining interest in this province.

In this case one medium only can be adopted, and this is, to declare those British coals free of duty, which may be imported for the consumption of the smelting establishments within the district of Cartagena—a concession which, seemingly, the Government ought to make, even with a sacrifice to the public treasury, considering the depressed state of the above mentioned branch of industry. The Government is aware that the concession which the Asturias collieries, and the consequent deficit in the Treasury receipts, no doubt, are objections which may be alleged against granting the exemption above noticed, which we deem necessary; but, on examining the question in all its bearings, it will not be difficult to show how they may be removed. It would be an illusion to suppose that, if the duties on coals continue, as they have hitherto done, the smelting establishments will be able to sustain themselves, and if, as an inevitable consequence, they should stop, a cessation in the working of the mines necessarily must follow, although it cannot be disputed that there is an enormous interest already invested in this new department of industry, from which also the Treasury derives a large revenue in the shape of dues. Should it appear that Asturias coal is not a suitable substitute for British, owing to its lower combustible strength, and its equal or higher prime cost, the working of the collieries in that quarter would not be materially injured, as the proprietors would still continue to sell the produce to the nearest smelting establishments, and for other uses, as they have hitherto done.—The twenty-seven works on our coast, when in activity, will, at the least, consume coals at the rate of 100 quintals each per day—making in the year one million of quintals (100,000 tons), and when the state of the Asturias collieries, and that of our navigation are taken into due account, who can believe, without incurring the risk of being wrong, that, without an increase in the price and freight of the coals which are to bring them, we should ever be able to obtain from that quarter the supplies which we require.

As regards the receipts in the treasury, it is, above all, to be borne in mind, that, if a reduction in the coal duty does not actually take place, as before stated, the smelting-works must cease, and with them, soon, will fall the collection of the very duty required. Besides, it does not so to forget that smelting encourages and supports the working of mines, and the extraction of metals, more particularly copper, silver, and, when all these enumerated and productive branches increase, their production, consequently, will be deemed an object of the first importance, and one which cannot be advanced, unless we exempt British coals from the excessive charge of import duties. We propose to remove of establishing, by a temporary concession, the degree of advantage which the Government may at present derive from the impost of the duty in question, compared with the loss accruing to the smelting establishments the result may be, and even when the treasury, in a falling off, should experience a diminution in the revenue—in it, and a sacrifice of public expediency to promote the general welfare, by removing the influence of the ground rent.

In order of what to furnish our fourth, your committee G. Fernandez, of opinion, that, after duly and maturely considering the subject, and after adopting such modifications and simplifications as may be thought necessary, the Central Mining Junta ought to present a memorial to Government, praying that the importation of British coals, required for the consumption of the smelting-works in this district, shall be declared free of duties, beginning, at the same time, to be supplied by those being required by other smelting works, under the regulations in force at present, in order to prevent the articles above named from being appropriated to the consumption of another kind, or consumed in other points.

(Thus follow the signatures.)

* This duty was afterwards reduced.

† It is to be noted that the Cartagena iron, smelting works, which hitherto has been almost entirely discontinued, owing to the heavy expense of fuel.

‡ In the 10th, I gave you the notice of the smelting-works already established upon the Mediterranean coast, from Sagunto to Barcelona—in all amounting to 27. D. Fernandez, the Secretary, writes to the Editor of the *Cartagena* newspaper, on the 10th of the month, that the smelting-works in the district of Cartagena were supplied by 100,000 tons of coal per day—making in the year one million of quintals (100,000 tons), and when the state of the Asturias collieries, and that of our navigation are taken into due account, who can believe, without incurring the risk of being wrong, that, without an increase in the price and freight of the coals which are to bring them, we should ever be able to obtain from that quarter the supplies which we require.

§ The exportation of coals from the ports of Gijón, Bilbao, and Villanueva, to the provinces of the north-western coast, is estimated, from 1830, to 1840, at 1,000,000, 1,200,000, 1,400,000, 1,600,000, 1,800,000, 2,000,000, 2,200,000, 2,400,000, 2,600,000, and 2,800,000 quintals, or 100,000, 120,000, 140,000, 160,000, 180,000, 200,000, 220,000, 240,000, 260,000, and 280,000 tons.

Expenses at Carthage		
May	4542
In the St. Isidore Works	director, M. Brocol, in three expeditious	3479
In the Franco Espagnole	director, M. Fillet	1041
Total of the above	9062
PART OF JUNE		
St. Isidore, two expeditious	2870
Franco Espagnole, two ditto	2870
St. George (Mr. Chervet), one ditto	900

P.S.—I certainly agree with "Cym" in his remarks of the 12th inst., "that it would be interesting and curious to understand the principles which the Roman engineers laid down and followed in their searches for, and the extraction of, metals; and also could we, by the character of the levels, &c., distinguish the works of the different classes of ancient miners, from the Phœnicians, Carthaginians, Romans, Danes, and more modern miners, and each other, so as to judge of the progress or decline of mining in different ages." Yes, but where and how is this great task to be performed? Spain is the only country where the nations above-named, excepting the Danes, successively carried on mining operations on a large scale, but one succeeded the other on the very same localities, and after them, in many cases, came the Goths, Moors, and, lastly, the Spaniards, so that the underground works are now so blended and confounded, that the portions attributable to each can no longer be distinguished. When the Romans went to Spain, mining must have been carried on there for centuries—consequently, practice had brought this branch of industry to something like comparative perfection, for Strabo assures us that the Carthaginians found the Torditanis, inhabiting the south, to be expert miners, extracting one-fourth of metal from their copper ore, and that silver utensils abounded amongst them. They must have improved during the two hundred and eighty years the Carthaginians held sway over them—consequently, when the Romans came, the aborigines had lessons to give—at least, practical ones—rather than to receive, from their new guests, who never could have had much experience in digging for metals. As far as I can judge—and my researches on the subject have been pretty extensive—in digging for and raising ores : that they accomplished their predecessors, in digging for and main force, rather than by science and art, their object by numbers and main force, rather than by science and art, and that, as the work was performed by slaves, and underground, the rather linked to the results than appearances. In following a metalliferous vein, or making a level, they would not, therefore, turn an arch with the same symmetry as if they were building a gallery in Rome. The government sent to Spain, thought only of enriching themselves, and being principally military men, and only serving one year each, they could not have taken much interest in the improvement of the natives. Besides, the tenure of the Romans was precarious and insecure. Their shafts are, indeed, distinguishable from those of the Moors, because they sunk them round, the latter square—almost, it may be said, the only discriminating feature now discernible. As regards the Romans, Pliny is the only historian who can be consulted on the subject, who tells us that they softened rocks with vinegar, and then burnt them, afterwards applying engine-rope weight to break them—probably, on the battering ram principle. In reference to the extraction of ores, the Romans were not so far advanced as the Peruvians, when discovered by Pisarro, as will appear from a perusal of Pliny's book, 33, with the accounts handed down to us by Garcilasso de la Vega.

BY BLASTING.

ACCIDENTS BY BLASTING. — TO THE EDITOR OF THE MINING JOURNAL.

The reports of accidents by blasting which have so frequently appeared in the late Numbers of your Journal, induce me to mention a plan known to many, but, perhaps, not to all engaged in such operations, when the hole is made in the rock, a rush full of powder is put in, and the remainder of the space filled by pouring in dry sand, and tamped down in 50 per cent. more effective than by tamping, and there is no danger of accident. This system was introduced by the late General Macdonald some thirty or thirty-five years ago, when commanding engineers in the West of Scotland, and engaged in blasting granite to a vast extent. In order to save the impossibility of blowing out the sand, several pieces of canvas were charged, and burst; even a howitzer, which is very short in the barrel, would not expel the sand, but was shattered to pieces.

A. R.
Glasgow, July 15.

— LONDON DOCKS.

SOUTHAMPTON DOCK JOURNAL.

TO THE EDITOR OF THE MIRROR.

SIR,—Your report of the proceedings before the committee of the House of Lords, on the subject of the amended Act for this company embraces so severe a censure on the conduct of the secretary and those directors who participated in the manoeuvre (I fear I ought to designate it by a stronger term) in respect to the 231 shares, that I have been at some pains to inquire into the matter, and I find that the facts respecting the pretended taking and subsequent secret forfeiture of those shares were but too correctly stated. I therefore cannot hesitate to say that the answer the *first* or five directors referred to retire, the better for the company; in fact, it behooves the proprietary to be prepared at the general meeting, which will be held, I believe, next month, to nominate other gentlemen willing to replace them. As it is impossible that the concerns can be otherwise raised from its present position—indeed, the gentlemen alluded to cannot but feel that, by so doing, they only inflict further injury on the company.

I cannot conclude without thanking you, on my own behalf, and on that of several other proprietors, for your spirited and judicious observations on the disclosures before the committee. It is clear that you are fully aware what the public have a right to expect from a Journalist; and it only remains now for the proprietors to do their duty, if they wish or expect to give a value to their property, which, at this moment, is almost valueless notwithstanding that Government have fixed upon Southampton as their market station. It ever must be thus, when directors do that which it is their duty to do—then those for whom they act.

[We are not surprised to find that "A Proprietor" should address us on the subject, while it is gratifying to observe, that the remarks we have made should elicit attention.]

[With respect to the question at least, we have so abundant stock abundance. With respect to the question at least, we have so abundant stock abundance. With respect to the question at least, we have so abundant stock abundance.]

[The meeting of proprietors will express an opinion which cannot be so misunderstood by the Directors, whose sentiment we contemplate. We have several communications from parties in Liverpool and Manchester which must, however, stand over.]

— NEW ORLEANS.

[illegible]

IMPROVED PROCESS OF EXTRACTING SILVER.

TO THE EDITOR OF THE MINING JOURNAL.—

SIR,—I have lately discovered an article of a simple nature which will extract silver from ore without the aid of quicksilver; and the ore sustains no injury from the process, neither has the silver lost its purity in the bottom of the furnace. Should you consider the discovery worth a patent, I would feel obliged by your inserting your remarks on the subject in your next Number.

A SUBSCRIBER TO YOUR JOURNAL made by our correspondent of Mon., July 13.
[There can be no question of the value of the discovery made by our correspondent, and if he will communicate with us more fully, we shall have much pleasure in advancing his views. Its application to the South American mines would be of the first importance, from the unusually high prices such places would be of the first importance, from the unusually high prices now obtained there for copper ores, as the process of extraction practised at the lead smelting works at Hailwell, where the cost does not exceed one ton of oil or silver to the ton of metal, appears to be perfect, so all little room for improvement.]

[illegible]

(Continued from page 10.)

PATENT METALLIC GUNPOWDER CASES.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—The explosions which are constantly taking place, through deficiency of protection in gunpowder magazines, and of which a late lamentable instance on board the *Commercy* is one in point, has induced the patentees of the newly invented Metallic Powder Case to bring their invention more prominently before the public; and, from my own experience, I deem it due to the patentees to state their superiority over every other that has been used. They are air tight; and the nature of the metal is such that an explosion can take place. They are proof against lightning, nor can friction excite fire from them; their durability is unlimited; each lid is a polished reflector, dismounts in a few seconds; and, having undergone severe tests, are considered to be brought to that state of perfection, which will at once remove all prejudice—too often attached to a new invention. An inspection is earnestly solicited, either at the Polytechnic Institution, or at the Island Metal Works, near Lambeth Church, where any suggestion will be thankfully received and duly attended to by, Sir, yours, &c.,

E. DALL.

Late of the Ordnance, Woolwich.

July 20.

MINERS.

MACHINE FOR RAISING AND LOWERING MINERS.
The committee appointed by the Royal Cornwall Polytechnic Society to inspect the "Man Engine" at Trevear, previously to the payment of the retaining portion of the premium of £500, offered by the society, of which £250 had been paid, met at the mine for the purpose of making their report. The following gentlemen—J. D. Gilbert, Esq. (a subscriber to the fund), Mr. Sanders, R. Rice and Mr. R. Hunt (members of the committee), Mr. Richards, of the Cornwall Wadeville, and Mr. Cantabrous, with Capt. Richards, descended into the mine, and several of the agents of Trevear, who is the fall depth to which the depth of 300 fathoms by the machine, which is the fall depth to which is carried. They then proceeded to the bottom of the mine, making it reached by twenty fathoms of ladders, and eleven fathoms of rope, making an extraordinary depth of 100 fathoms from the surface. Thus an opportunity was afforded of testing the advantages of the "Man Engine" over the usual means of ascent and descent. On their return to the surface, the committee met, J. R. Elys, Esq., in the chair, and expressed their warm approval of the admirable manner in which this grand experiment had been carried out by the adventurers of Trevear, and ordered the secretary to pay immediately the remaining £250. It appears that in time and wages a saving to the treasurers of a very considerable sum will be effected; thus this machine which was first adopted through pure motives of humanity, appears likely to prove a source of pecuniary profit to the adventurers. It may be satisfied to state, that the machine for raising and lowering the men to this depth (300 fathoms), effects it in about twenty minutes, whereas, by the old mode upwards of an hour was consumed, and the men greatly exhausted, who now, without the slightest fatigue, they are landed near their work, or brought to the surface. Great praise is due to Mr. M. Linn for the very skillful manner in which he executed this work, and we sincerely hope that other similar cases will be met with.

[illegible][illegible]

entire set - L. H. Biddle & Hal. Esch., orig. descr.

ENGLISH MINES.

[illegible][illegible]

July 10.—In the righty west of Christies the beds are four and six feet more
 ore. The seventy east is a foot wide, with stones of ore, and some
 alund. The sixty east is three feet wide, producing some ore and good
 alund. The fifty east is the fifty east is worth 50¢ per fathom. At Gumd
 ore. The wine under the fifty east is worth 50¢ per fathom. The fifty east is three feet
 Fortune, the fifty east is worth 50¢ per fathom. The forty-four is worth 14¢
 wide, worth 19¢ per fathom. The wine under the forty-four is worth 14¢
 wide, worth 19¢ per fathom. The forty-four west is worth 14¢ per fathom. W. SYMONS.
 per fathom. THE ALABAMA MINING COMPANY.

July 17.—In the north engine shaft we have sunk four feet in the new cast, the men having been principally engaged in preparing for sinking one ft at this level. In driving south, at the sixty fathom level, on the lead lode, we have still a badly ended lode about four inches wide, very good work. The copper lode, going east, at the fifty fathom level, presents also a favorable appearance, being about twelve inches wide, composed of spar, malachite, and copper ore. The lead lode, going south, at this level, is still small and unimportant. On the lead lode, at the forty fathom level, we are now prospecting. Driving south on the lead lode, about eight inches big, good work. At Huntington good tribute ground—lode about eight inches big, good work. We have two men driving on a lode, or branch, lately discovered on the western side of the cross-course, where it is probable we may have to drive two or three fathoms before we shall be able to ascertain the nature of the lode (at the north end it is still being driven by two men)—ground favorable. The steam winch is quite ready for the wire rope, which we hope to receive from Piquette this evening. The walls of the new engine-house at the south end about eleven feet above are complete.

J. PERRY.

July 17.—In sinking Murray's engine shaft below the sixty fathom level, we find the north and Chilverton lodes united, forming three feet wide, one and a half feet of which is very rich in lead, and the remainder saving work; so compute it altogether west of the great engine shaft, is about two feet wide, fathom level, driving west of the great engine shaft, with good stunes composed of soft white spar, and a quantity of muscadine, with good stunes of lead; we are much pleased with the appearances here especially, as we do not calculate of having reached the east run of lead yet. We have commenced the sixty to the seventy fathom level, and have now fully exposed the sixty to the seventy fathoms to the west of the mine of air. We have also commenced to sink a new winze below the sixty fathoms level, on the north side, about thirty fathoms to the west of the mine (just laid); here we have a good lode worth ten per fathom. In the sixty fathom level, west of Murray's shaft, we are driving north to see the north lode, and expect to cut in a few days. The east slopes are much the same, and sixty fathom level have good appearance; the next slopes are much the same, as they have been for some time. Our prospects are very encouraging; and together with the returns, we hope corroborate our former reports satisfactorily. We stopped on Friday last, computed fifty-four tons of silver-ore, taken from the old lode. J. WOOD. H. BROWN, Junr.

[illegible][illegible]

MINE ACCIDENTS.
Chas.ington Colliery.—W. Mack was killed by a fall of stone from the roof of the pit.
Bridge Pit.—On Tuesday a sudden fall of part of the roof took place, burying J. Greenwood and several other men who were at work; Greenwood was taken out dead, but the others are doing well.
Quarry of Ashton New Barracks.—As Robert Chappell was working in this quarry, he had undermined a large piece of rock, which suddenly fell upon him, and crushed him to death.
Gloucestershire Pit, Runcorn.—Thomas Fletcher was much injured by the fall of a stone; his leg was amputated, and his body much bruised.
Chas.ington Mine, Cornwall.—As two men were at work in this mine, a large heap of rubbish fell and buried them; one was extricated unharmed, but the other died on the spot.

[illegible]

Toll Voke Railway.—*Shirley* (Inquirer).—On Saturday last, the application of Mr. Voke for a Bill to amend the Act relating to the Shirley Railway, was taken into consideration by the Joint Committee of the Free City Council, but, after the usual course of proceedings, the Bill was not passed.

[illegible]

PRICES OF MINING SHARES

submitted in the article appended to our last w

An error was committed in the notice appended to our last week's Mining Share List, respecting the per centage paid in the dividend of 25. 12s. 6d. per share by the Hastings Company. We stated the dividend at 27 per cent. per annum; the fact is, that 25. 12s. 6d. per share being a half yearly dividend, the actual amount of interest obtained is 54 per cent. per annum; and, on referring to the latest transactions in Hastings shares, it certainly appears singular that they should not support a higher quotation—the present price being only 21s. per share, as the said dividend.

128	Cashmere	95	140
19,000	Dun Smelter & Con. Co.	87	—
128	East Pool	—	260
100	Great Consols	97	600
10,000	Hibernia	121	2
1,000	Holmbeck	14	40
2,000	Iain de Birk (Guernsey)	18	—
80	Leland	—	450
10,000	Mining Co. of Ireland ?	7	124
100	Norfolk Mines	100	—
70	North Yorkshire	—	—

FOREIGN MINES.			
3,000	Aiken Mining Company	124	40
10,000	Anglo Mexican Co.	100	24
3,274	Do Subscriptions	28	8
2,900	Bolton	100	40
—	Edisto Seris	18	40
10,000	Brazilian Imperial	21	7
10,000	Sulphur	20	—
10,000	Edisto Seris	10	2
10,000	Cata Branca-Brazilian	63	4

TOTAL PRODUCE.

TOTAL PRODUCE.									
Township	257	2794	4	West Croydon	131	2700	3	0	
Public	140	2956	12	Wh. Maidon	85	261	0		
Par Comeda	257	2599	6	Cromford	62	226	13	0	
Wh. Jewell	257	2477	10	Wh. Henry	57	208	16	6	
Wh. Comeda	257	2599	6	Wh. Gody	38	19	13	0	
Holmwood	250	1591	5	Wh. Tolgus	3	24	13	0	
Wh. Providence	133	1192	7						
Average standard, 100, 11a. - Average produce, 64. - Average price, 57, 11a. 6d.									

of ore, 700.3 tons.—Quantity of fine ore, 218 tons 1 cwt.—
18,000 lb. ss. 6d.—Average standard of last sale, 100 lb. ss.—Ave-

COMPANIES BY WHOM THE ORES WERE PURCHASED.		
	Tons.	Amount.
Mine Royal Company	195	\$155 4 6
English Copper Company	7089	6028 18 3
Wheat and Sons	2138	1800 2 2
Frederick and Co.	2654	1867 19 4
P. Grantell and Sons	2000	1509 5 0
Crown Copper Company	694	587 2 0
Hess, Williams, Nevill, Deane, and Co.	414	126 2 10
Williams, Foster, and Co.	517	3068 17 4
Total	2063	\$18,397 4 9

over for sale on Thursday next, at Pearce's Hotel, Truro.—A

Copper ore for sale on Thursday next, at Pearce's Hotel, Tracy.—Miner and Partners.—Conasa Mines, 555; United Mines, 109; South Canadian, 400; Trouessart, 87; Trethellan, 100; West Wheel Jewet, 101; Hallsburg, 100; Foway Consoida, 100; Williams's East Downs, 147; Wheel Eden, 119; Treleigh Conasa, 91.—Total, 1095 tons.

Copper ore for sale on Thursday week, at Lynch's Hotel, Cambarlow.—Mines and Porends.—East Wheel Croft, 40; 401, Cambarlow Vase, 40; 401, Dinmuth, 271; South Wheel Basset, 301, United Hills, 274; Far Connock, 212; Fursey Connock, 220; Wheel Trewaras, 101; East Pond, 101; Trofith, 111; South Wheel Francis, 110; Trevaras Connock, 50; Wheel Harriet, 30; Treghoban, 10; Martin's Ore, 11; Cliff Downs, 10; Wheel Connock, 10; Treghowall, 8; Wheel Riney, 4.—Total, 3,120 tons.

SALE OF COFFEE ORNS AT SWANSEA.

Coffees were for sale July 96.—Coffee 113, ditto 118, ditto 120, ditto 97, ditto 49,
ditto 114, ditto 102, ditto 93, ditto 82, ditto 8, ditto 191, ditto 94, ditto 60, ditto 49
ditto 49, ditto 27, ditto 106, ditto 100, ditto 96, ditto 47—Kummadashan 94, ditto 97
ditto 96, ditto 12, ditto 84, ditto 84, ditto 84, ditto 84, ditto 84, ditto 84, ditto 84, ditto 84

[illegible]

SALE OF COPPER ORES AT LIVERPOOL.
Copper ores for sale July 14.—Chill 53, ditto 54, ditto 55, ditto 77, ditto 78, ditto 79, ditto 71, ditto 80, ditto 78, ditto 78, ditto 83, ditto 83, ditto 78.—Total, 600 tons.

LATEST CURRENT PRICES OF METALS.			
LONDON, JULY 21, 1943.			
	£	s.	d.
Ingots—Foreign, fine	78	0	10
Do. for delivery	78	0	20
Do. Standard sheet	74	0	0
Copper—Cats	100	0	0
Do. per ton	100	0	0
Do. per lb.	0	0	7 1/2

[illegible]

Fig. No. 1, White	0	0	0	0	0	Fig. plates, No. 101	0	0	1	7	0
No. 1, Clyde	0	0	1	1	0	" No. 15	1	0	1	10	0
Fig. Swedish	0	0	0	0	0	" washes in p. box line					
Revised, 1910	1	0	0	0	0	Less—Sheet cut	1	0	17	0	0
						Sheet, patent			10	0	0
						Bar					
						White					

Arrivals		Exports	
1901--Swedish reg.	10 0 0	1901--English	10 0 0
1902--Swedish reg.	10 0 0	1902--Spanish	10 0 0
1903--Swedish reg.	10 0 0	1903--American	10 0 0

EXPORTS OF METALS TO INDIA FROM LONDON AND LIVERPOOL.

From 1st Jan. to 31st Dec. 1901. 1902. 1903.

[illegible]

Line.	Length.	Open.	Actual cost.	Full Value Share.	Value Share.	Loss with returns.
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Birmingham and Furler Railway	15	15	4,105,765	25	22	4,013 10 1
Birmingham & Derby Canal	409	409	1,149,035	100	000	1319 1 0
Birmingham and Gloucester	50	50	1,400,000	100	242	3162 10 1
Breadth Junction	25	25	43,824	50	—	911 7 1
Chester and Birkenhead	144	144	538,474	50	30	505 0 0
Dublin and Kingsdown	1	1	246,202	100	107	595 10 0
Dundee and Arbroath	108	108	135,000	25	150	507 0 1
Dundee and Perth Canal	31	31	2,095,100	3	54	574 14 0
Eastern Counties	81	81	2,490,000	3	54	500 0 0
Edinburgh and Glasgow	40	40	7,152,100	30	504	3515 0 0
Glasgow and Ayr	51	51	980,004	50	40	1001 11 5
Glasgow and Greenock	224	224	709,000	25	20	1491 0 0
Gr. Joint. & Chester & Crewe	1124	1124	7,310,520	100	100	6037 0 0
Great North of England	74	43	1,201,471	100	63	1504 14 1
Great Western	1104	1104	8,440,628	65	30	19339 0 1
Hull and Selby	81	81	643,000	50	47	1329 9 10
Leamington and Banbury	81	81	1,515,253	100	47	1181 10 0
London and Birmingham	1174	1174	8,802,770	100	216	1910 0 0
London and Blackwall	59	59	1,235,075	100	44	1104 10 11
London and Brighton	50	50	2,500,040	50	50	1128 14 11
London and Croydon	104	104	645,471	112	100	872 14 11
London and Greenwich	31	31	1,010,000	125	4	801 7 9
London and South Western	919	919	2,880,000	300	030	9033 1 5
Manchester, Bolton, & Bury	10	10	777,007	50	50	900 3 10
Manchester & Birmingham	43	43	1,400,000	40	222	1008 1 1
Manchester and Leeds	58	58	1,400,000	70	78	1153 0 0
Midland Counties	67	67	1,400,100	100	—	1010 0 0
Newcastle and Carlisle	61	61	1,400,000	100	70	1475 0 0
Newcastle and N. Shields	7	7	202,070	45	44	050 19 7
Northern and Eastern	201	201	600,007	43	24	1757 10 0
North Midland	722	722	3,022,041	100	70	1060 19 1
North Union	22	12	612,000	75	71	1010 7 5
Paris and Rouen	—	04	1,170,000	50	104	070 10 10
Paris and Orleans	—	02	1,000,100	10	30	050 10 0
Perth and Wye	15	15	817,000	50	—	050 1 0
Perth and Manchester	15	11	812,000	50	—	075 0 0
South Eastern	81	80	2,400,024	100	24	1003 0 0
Tot Vaig	30	30	350,073	100	—	702 10 0
Ulster	10	10	344,000	50	—	009 14 0
York and North Midland	17	17	600,100	50	100	003 0 0

The number of passengers who passed through the Tunnel in the week ending

JOINT-STOCK BANK:

\$2,000	Brown & Root	10	10	\$2,000	United Bank of	10	10
\$2,000	Brown & American	40	40	\$2,000	Union Banking Co.	10	10

1990	Cheney	25	100	1990	McGovern	10	44
1990	McGovern	10	44	1990	McGovern	10	44

19, 1904	London Docking Co.	10	14	18, 1904	North & South Wales	10	14
19, 1904	London & West Docking	44	18	19, 1904	Provincial of Ireland	10	14

19,000	London and Country	12	12	14,000	Choice of Australia	13	14
19,000	Liverpool Alliance	15	19	50,000	Choice of London	10	10

Series	Contract	Fed. Price	Market	Contract	Fed. Price	Market
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[illegible]

1901	Stella Polymorpha	7	1	1902	Stella Polymorpha	7	1
1903	Stella Polymorpha	7	1	1904	Stella Polymorpha	7	1

2,213	Carroll's Land Co.	5.0	11,481	Garage and House	20	17
1,000	W. C. and Mrs. Anna Smith	20	5,000	Smith's Bros. Farming	40	50

1st Class, Steamer, Sigsbee	14	123	2nd Class, Steamer, Sigsbee	14	24
1st Class, Steamer, Sigsbee	14	123	1st Class, Steamer, Sigsbee	14	24

48 40795120 48 7000 7000000000 0000000000

Blacksmith equipment	7	0	Group total	14	0
Blacksmith labor	7	0	Welding equipment total	13	0

1970-71	1971-72	1972-73	1973-74	1974-75	1975-76	1976-77	1977-78	1978-79	1979-80	1980-81	1981-82	1982-83	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35	2035-36	2036-37	2037-38	2038-39	2039-40	2040-41	2041-42	2042-43	2043-44	2044-45	2045-46	2046-47	2047-48	2048-49	2049-50	2050-51	2051-52	2052-53	2053-54	2054-55	2055-56	2056-57	2057-58	2058-59	2059-60	2060-61	2061-62	2062-63	2063-64	2064-65	2065-66	2066-67	2067-68	2068-69	2069-70	2070-71	2071-72	2072-73	2073-74	2074-75	2075-76	2076-77	2077-78	2078-79	2079-80	2080-81	2081-82	2082-83	2083-84	2084-85	2085-86	2086-87	2087-88	2088-89	2089-90	2090-91	2091-92	2092-93	2093-94	2094-95	2095-96	2096-97	2097-98	2098-99	2099-00	2100-01	2101-02	2102-03	2103-04	2104-05	2105-06	2106-07	2107-08	2108-09	2109-10	2110-11	2111-12	2112-13	2113-14	2114-15	2115-16	2116-17	2117-18	2118-19	2119-20	2120-21	2121-22	2122-23	2123-24	2124-25	2125-26	2126-27	2127-28	2128-29	2129-30	2130-31	2131-32	2132-33	2133-34	2134-35	2135-36	2136-37	2137-38	2138-39	2139-40	2140-41	2141-42	2142-43	2143-44	2144-45	2145-46	2146-47	2147-48	2148-49	2149-50	2150-51	2151-52	2152-53	2153-54	2154-55	2155-56	2156-57	2157-58	2158-59	2159-60	2160-61	2161-62	2162-63	2163-64	2164-65	2165-66	2166-67	2167-68	2168-69	2169-70	2170-71	2171-72	2172-73	2173-74	2174-75	2175-76	2176-77	2177-78	2178-79	2179-80	2180-81	2181-82	2182-83	2183-84	2184-85	2185-86	2186-87	2187-88	2188-89	2189-90	2190-91	2191-92	2192-93	2193-94	2194-95	2195-96	2196-97	2197-98	2198-99	2199-00	2200-01	2201-02	2202-03	2203-04	2204-05	2205-06	2206-07	2207-08	2208-09	2209-10	2210-11	2211-12	2212-13	2213-14	2214-15	2215-16	2216-17	2217-18	2218-19	2219-20	2220-21	2221-22	2222-23	2223-24	2224-25	2225-26	2226-27	2227-28	2228-29	2229-30	2230-31	2231-32	2232-33	2233-34	2234-35	2235-36	2236-37	2237-38	2238-39	2239-40	2240-41	2241-42	2242-43	2243-44	2244-45	2245-46	2246-47	2247-48	2248-49	2249-50	2250-51	2251-52	2252-53	2253-54	2254-55	2255-56	2256-57	2257-58	2258-59	2259-60	2260-61	2261-62	2262-63	2263-64	2264-65	2265-66	2266-67	2267-68	2268-69	2269-70	2270-71	2271-72	2272-73	2273-74	2274-75	2275-76	2276-77	2277-78	2278-79	2279-80	2280-81	2281-82	2282-83	2283-84	228
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[illegible][illegible]

ഗവൺമെന്റ് കോളേജ്	19	0	ഗവൺമെന്റ് കോളേജ്	20	0
ഗവൺമെന്റ് കോളേജ്	21	0	ഗവൺമെന്റ് കോളേജ്	22	0

[illegible]

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(provided to me by [redacted], post-1980.)

[redacted] 02, 1986.